

# *Optimization Strategy of Urban Parks Leisure Space in Context of Aging Population*

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**Abstract**—China has entered the aging society, and many social problems are caused therefrom. The acceleration of urbanization, the rise of leisure consciousness promotion and special position of urban parks in city allow the leisure space of urban parks to be the first choice for outdoor recreation. Based on the behavioral characteristics of the elderly, this paper studies the elder's needs for outdoor leisure space, and puts forward some strategies for optimizing the leisure space of urban parks from the aspects of microclimate construction, space optimization and integration, addition and enrichment of activity facilities, perfection of public facilities, and implantation and expression of regional elements.

**Keywords**—urban park; leisure space; aging population; optimization strategy

## I. INTRODUCTION

China is now in a period of rapid aging. The acceleration of aging population has brought about different degrees of influence on various fields of society, which is reflected in the living environment that is closely related to people. The National Plan for Development of Aging Career and Construction of Pension System in 13th Five-Year Plan puts forward the goals of improving the health support system, promoting the construction of livable environment for the elderly and enriching their spiritual and cultural life. It is estimated that by 2020, the population of the elderly over 60 will increase to about 255 million, accounting for 17.8% of the total population. The 13th Five-Year Plan will focus on improving the ageing policy system, strengthening the livelihood security and service supply for the elderly, giving full play to their active role, and enhancing their sense of participation, acquisition and happiness [1]. In the face of the rapid aging society, the whole society should take corresponding measures. Urban parks are precious features of cities, which provide leisure places for the city and carry public entertainment, recreation, culture, sports and other leisure activities.

## II. THE ELDERLY'S DEMAND FOR LEISURE LIFE

The elderly's demand for leisure life is to engage in activities

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that meet their spiritual and cultural needs during spare time so as to achieve a sense of integration with leisure environment. Because of physiological and psychological reasons, together with a lot of spare time, the elderly pay special attention to physical health and strongly desire for rich and colorful leisure life.

### A. *The Behavioral Characteristics of the Elderly*

The behavioral characteristics of the elderly show a significant decline in their physiological functions. Reserve capacity is reduced and generally difficult to bear heavy loads or deal with accidents; the resistance is reduced, with weakened adaptability and reduced self-care ability. With the increase of age, their social role has undergone tremendous changes; and the reduction of social function has weakened their sense of safety and self-confidence. These changes also narrow the life scope of the elderly. Physiological and psychological changes make the elderly need to take part in mass activities and communicate with others. Because they are familiar with the past social environment, lifestyle and leisure habits, therefore, the better preserved area of the city has great attraction for the elderly. They are willing to engage in emotional communication with their familiar peers.

### B. *Leisure Life Has Become the Subject of Life for the Elderly*

Leisure is a kind of life style and attitude of modern people. It is the time to realize life and appreciate themselves beyond the time of survival [2]. Leisure activity is a spiritual experience and enjoyment, and a carrier of self development and improvement. Based on more time and relatively rich material accumulation of life, the elderly are more qualified to participate in leisure activities.

1) They have plenty of leisure time. After retirement, the elderly have a lot of time; and due to physiological reasons, the sleep time is relatively reduced; in addition, with the accumulation of life experience, a lot of things in life form inertia and relatively reduce the consumption of time, so they have plenty of time.

2) They focus on health and physical exercise. Due to the decline of physiological function, the elderly pay special attention to their physical health, life and rest, understand health knowledge from a variety of channels; more and more elderly people begin to carry out all-round physical maintenance from diet to exercise, and then to leisure.

3) They need to participate in social activities psychologically. Because of the improvement of economic conditions and education, the elderly's participation in society needs to be improved gradually. And the family size continues to shrink due to the one-child policy, making the elderly lack an important way of leisure ---communication. They are increasingly eager to get out of families, participate in social activities and communicate.

### III. URBAN PARKS BECAME THE FIRST CHOICE FOR OUTDOOR LEISURE LIFE.

Apart from form and space, the reason for urban parks becoming the first choice for outdoor leisure life lies in people's experience of it. It has been found that the fast-paced urban living groups increasingly regard leisure activities as the basic needs of urban park experience, and this function becomes important [3,4]. The focus of the elderly's life is more on maintaining physical health and spiritual pleasure, which is manifested in the desire to participate in social exchanges. Urban parks provide the elderly with a good ecological environment, open space for activities, suitable venues for activities, which can promote the elderly to participate in leisure activities and social exchanges, and play an important role in their outdoor leisure life.

#### A. Free Policy

Now a large number of urban parks implement free policy; free urban parks make tourists more convenient and efficient enter park and get real benefits. The elderly people are more inclined to take part in free activities because of their accumulated diligent and frugal consumption concept. Free is one of the most attractive reasons for urban parks. The implementation of free policy has increased the random entry rate and utilization rate of urban parks. Although traffic distance is also an important factor affecting the elderly's access to urban parks, the free policy is more attractive than traffic distance.

#### B. Ecological Environment

Compared with other public spaces in the city, the most attractive point of urban parks is the excellent ecological environment. Based on the basic functions of urban parks, they are one of the highest green coverage urban land [5]. Users have strong demands for garden plants and landscape environment in the park. Visitors are always in constant flow in which there is hydrophilic resting space with shade. Good vegetation, ecological environment and fresh air provide users with comfortable environment.

#### C. Full Space or Reserved Space for Social Activities

There are full space or reserved space for social activities. An important function of urban parks is to provide leisure space for city, and carry public entertainment, recreation, culture and sports activities [6] [7]. This has become a conventional concept, so "space for activities" is an important criterion for the elderly to choose leisure activities; and the urban parks have plenty of space, and there are still some hidden spaces to be developed.

### IV. URBAN PARKS ENHANCE LEISURE FUNCTION STRATEGY

Urban parks enhance leisure function strategy. The time for the elderly to enter urban parks is flexible and lengthening, which adjusts the park schedule. In urban parks, the leisure activities of the elderly are diverse, which puts forward new requirements for leisure space and facilities of urban parks.

#### A. Behavior Characteristics and Spatial Requirements of the Elderly in Urban Parks

1) Leisure and viewing. Leisure and viewing are one basic behavior of the elderly in urban parks. People have the instinct of pursuing beauty. The urban parks have beautiful and natural environment; the plant landscaping and garden facilities endow the enjoyment of beauty. People can relax and enjoy themselves. There are many rest spaces in urban parks. Combined with the green environment of parks, a comfortable and harmonious leisure space is constructed, and the elderly can stay here and enjoy the comfortable atmosphere brought by the environment.

2) Physical exercise. Physical exercise is an important leisure activity for the elderly in urban parks. They achieve the goal of health through various exercises. Urban parks provide outdoor public exercise venues, circular roads, entrance plaza, waterfront platform, underfloor space, they can take walks, run, and use sports facilities in urban parks. For the elderly, urban parks also provide outdoor rehabilitation places.

3) Entertainment. Happy experience is a direct motivation for people to participate in activities. The elderly yearn for urban parks since they can take part in collective entertainment activities and interact with others. They are entertained in recreational facilities or buildings provided by parks. They often have their own groups and carry out different recreational activities, such as playing cards, doing exercises, singing, dancing, etc. The popular square dance in recent years even has become a label of elderly activities; square dance is a group activity that is easy to accept and participate in, which is beneficial to the body and mind. From the perspective of urban park landscape, it is also a unique landscape.

4) Social interaction. After retirement, most of the elderly leave their original working and living environment. As individuals in society, they are full of yearning and desire to join social group activities. By constructing leisure space and carrying leisure activities, urban parks provide an outdoor platform for social communication for the elderly. They can engage in various social interactions in city parks, such as chatting, meeting, etc.

#### B. Urban Parks Adapt to the Principle of Optimizing the Use of Leisure Space for the Elderly

The elderly are the group with the highest frequency of leisure environment utilization, the longest activity time and the greatest degree of dependence in urban parks. Due to the psychological and physiological particularity, the urban parks should take full account of special needs of the elderly in optimization process of leisure space.

1) Principle of safety and comfort. People perceive unsafe factors through various sensory functions such as vision, hearing, touch, etc. The elderly's sensory function is gradually deteriorated, their perception of danger is diminished; some safe places may be dangerous for them. Therefore, urban parks should reduce the steps, minimize step height or change to the slope of non-slip ramp and install auxiliary railings if terrain construction can not be avoided. Comfort includes the comfort of natural environment and use environment. Comfortable space should create a pleasant microclimate, with soft material texture, gentle and non-dazzling colors, not noisy environment.

2) Principle of accessibility and inclusion. Accessibility of urban parks refers to the integrity of traffic organization, including the realization of barrier-free traffic and the systematicness of guidance. At present, most urban parks in China have already adopted slow-moving system, which prohibits the entry of motor vehicles. Only the internal vehicles of parks can be used on the prescribed roads, which greatly improves the accessibility of parks. The improvement of the mark system is also an important way; the mark and guidance need to be considered from the location, display height, display mode and other aspects. The inclusion principle should focus on the needs of the elderly in design but not limited to the use of the elderly, but should meet the needs of all users for leisure functions; the environment shall be inclusive to meet the fair use, meet the diversity of leisure space and satisfy different groups' choice of leisure environment.

3) Boundary optimization principle. Boundary space is one of the most frequently used spaces in urban parks. Boundary optimization is one of the most basic and feasible methods to improve leisure functions. In public space, sitting space often occurs at the boundary space. Reasonable boundary siting space makes it easy to stay and rest; and it is attractive to the elderly because the activity is not exposed to the public. Boundary siting space should also optimize the layout of seating and rest facilities to provide better communication environment for the elderly.

4) Principle of communicative motivation. For the elderly's communicative participation, the park facilities or space construction can be utilized to mobilize their physiological system; and touch, hearing, vision, smell and other different experiences can be used to guide the elderly to participate in. In landscape space, it can create a material space environment to encourage the elderly to communicate and share e.g. various forms of garden architectures, forest leisure plaza, enclosed sitting and rest facilities.

### *C. Urban Park Leisure Space Optimization Strategy*

Urban parks are the preferred space for outdoor leisure activities of the elderly [8]. They use urban parks with high frequency, flexible time and diverse requirements for venues. Urban parks need to be constantly optimized in new and existing leisure space so as to meet the general trend of aging society.

1) Space optimization and integration. There is a certain connection between the activities space of the elderly in urban parks with their mode and time; and the characteristics of their activities determine the diversity of space needed. Urban parks

have limited space, which also need to meet the needs of other tourists, so it can take time-sharing measure to solve this problem to meet various forms of activities and achieve multiple use. For example, waterfront plaza, pavilion and corridor, flower rack and other space, can meet different periods of reuse; step and plant enclosure spaces, etc. can be randomly divided and integrated to ensure that the space can be effectively used under different conditions; at the same time, it can build viewing platform on waterfront to increase the ornamental and expand the use space; it can erect a plank road in under-forest space to ensure the continuity of ecosystem and improve the utilization of park.

2) The increase and enrichment of the facilities. The increase in the overall number of older people has increased the number of people entering urban parks and using recreational facilities; and the demand for mobile facilities has increased. In addition to increasing the number and variety of fitness facilities, seat or sitting facilities should be flexibly added, the form should be flexible; for the crowded plazas and road edges, large seats can accommodate more people to rest; and slightly uncomfortable forms suggest that people can choose other activities; the wooden seats, backs and armrests along the road or edge and quiet paths, around small plazas can increase comfort and stay time in areas where the elderly frequently carry out activities. At the same time, supplementary flower pools, pools, steps, stones and curbstone can also increase the probability of sitting down and chatting for the elderly.

3) The perfection of supporting public facilities. On the basis of reasonable quantity and distribution, the supporting public facilities such as street lights, garbage cans, mark systems and roads should take full account of the use requirements of the elderly, and should be easy to identify and set up on the key nodes. For example, in addition to the main road, it should also fully consider the ramp-step lighting settings in the lighting system. On the aesthetic basis, it shall try to use functional wall lights, lawn lights to ensure the safety of the elderly. The use of garbage cans should give full consideration to the height to avoid bending excessively. At the same time, the classification of materials should adopt the combination of words and patterns. In the design of park mark system, based on design specifications, it should stress the recognizability of shape, utilize strong color contrast, clear boundary and suitable size; legend can directly mark the surface to facilitate the use of the elderly. The road line design should be as clear and simple as possible and easy to identify; comfortable natural materials should be selected. In terms of roughness, it should have texture; anti-skidding on rainy days is an important measure to ensure the safety of the elderly. At the same time, barrier-free environment can create safe and convenient places to promote the elderly to actively participate in social life; barrier-free space design and detail design should be embodied in every aspect of park construction.

4) Regional elements increase the cultural atmosphere of a city. In addition to open space, dense trees, quiet environment and

provision of communication and privacy, urban parks should also express the urban culture through regional features, local plants, architecture and other elements in terms of the layout, main scenery, seasonal landscape, materials and facilities. It can experience the culture and characteristics and generate a sense of recognition and cognition through visual communication or physical experience so as to increase the sense of belonging of the elderly.

#### V. CONCLUSION

With the improvement of urban living standards, people pay more attention to leisure life; and the aging population has brought tremendous impacts on all aspects of society. Urban parks are an important part of public life. Under such a background, it should take active measures to deal with the coming of "silver hair tide". In an aging society, the design principles based on the physiological, psychological and behavioral characteristics of the elderly can fully reflect the respect for them, it is also a positive measure to deal with the aging society and a need to improve the quality of national leisure life.

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